

6HB5

COMPACTRON BEAM PENTODE

FOR TV HORIZONTAL-DEFLECTION AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 6HB5 is a compactron beam-power pentode designed for use as the horizontal-deflection amplifier in television receivers.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC*	6.3±0.6	Volts
Heater Current†	1.5	Amperes

Direct Interelectrode Capacitances, approximate‡

Grid-Number 1 to Plate: (g1 to p)	0.4	pf
Input: g1 to (h + k + g2 + b.p.)	22	pf
Output: p to (h + k + g2 + b.p.)	9.0	pf

MECHANICAL

Operating Position - Any
Envelope - T-12, Glass
Base - E12-74, Button 12-Pin
Outline Drawing - EIA 12-58

Maximum Diameter	1.563	Inches
Maximum Over-all Length	3.375	Inches
Maximum Seated Height	3.000	Inches

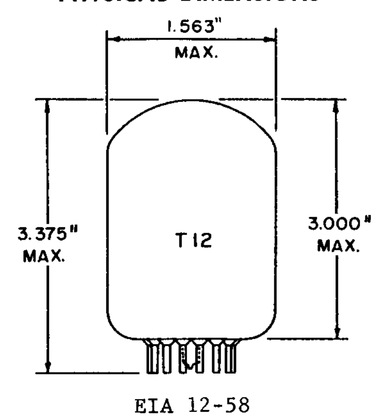
MAXIMUM RATINGS

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

PHYSICAL DIMENSIONS

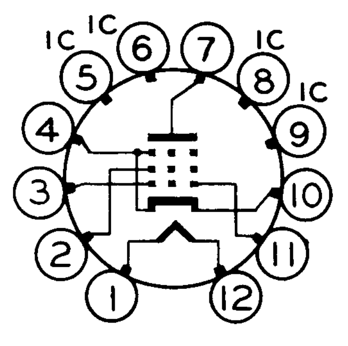


EIA 12-58

TERMINAL CONNECTIONS

Pin 1 - Heater
Pin 2 - Grid Number 2 (Screen)
Pin 3 - Grid Number 1
Pin 4 - Cathode and Beam Plates
Pin 5 - Internal Connection - Do Not Use
Pin 6 - Internal Connection - Do Not Use
Pin 7 - Plate
Pin 8 - Internal Connection - Do Not Use
Pin 9 - Internal Connection - Do Not Use
Pin 10 - Cathode and Beam Plates
Pin 11 - Grid Number 1
Pin 12 - Heater

BASING DIAGRAM



EIA 12BJ



MAXIMUM RATINGS (Cont'd)

HORIZONTAL-DEFLECTION AMPLIFIER SERVICE — DESIGN-MAXIMUM VALUES §

Rating	Value	Unit
DC Plate-Supply Voltage (Boost + DC Power Supply)	770	Volts
Peak Positive Pulse Plate Voltage	6000	Volts
Peak Negative Pulse Plate Voltage	1500	Volts
Screen Voltage	220	Volts
Negative DC Grid-Number 1 Voltage	55	Volts
Peak Negative Grid-Number 1 Voltage	330	Volts
Plate Dissipation¶	18	Watts
Screen Dissipation	3.5	Watts
DC Cathode Current	230	Milliamperes
Peak Cathode Current	800	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid-Number 1 Circuit Resistance	1.0	Megohms
Bulb Temperature at Hottest Point	220	C

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Characteristic				Unit
Plate Voltage	5000	60	130	Volts
Screen Voltage	130	130	130	Volts
Grid-Number 1 Voltage	---	0#	-20	Volts
Plate Resistance, approximate	---	---	11000	Ohms
Transconductance	---	---	9100	Micromhos
Plate Current	---	410	50	Milliamperes
Screen Current	---	24	1.75	Milliamperes
Grid-Number 1 Voltage, approximate				
Ib = 1.0 Milliamperes	-66	---	-33	Volts
Triode Amplification Factor∆	---	---	4.7	

NOTES

* The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.

† Heater current of a bogey tube at Ef = 6.3 volts.

‡ Without external shield.

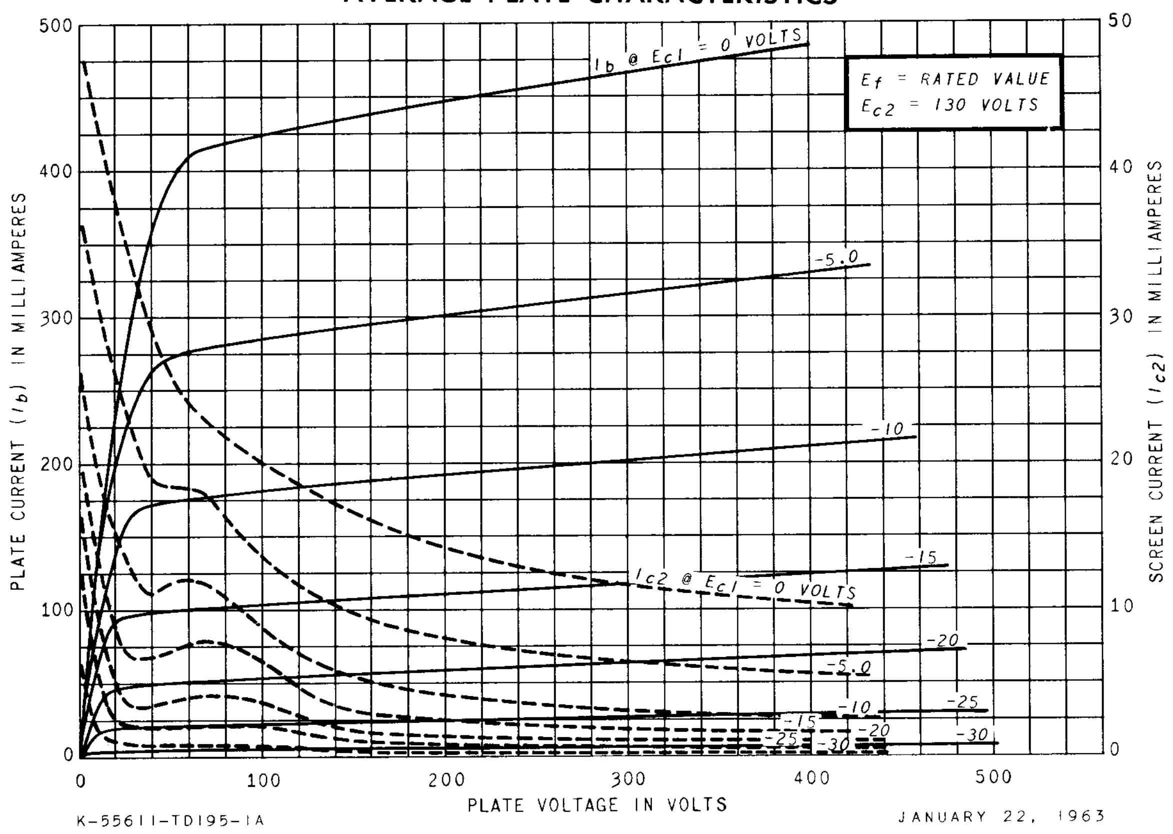
§ For operation in a 525-line, 30-frame television system as described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.

¶ In stages operating with grid-leak bias, an adequate cathode-bias resistor or other suitable means is required to protect the tube in the absence of excitation.

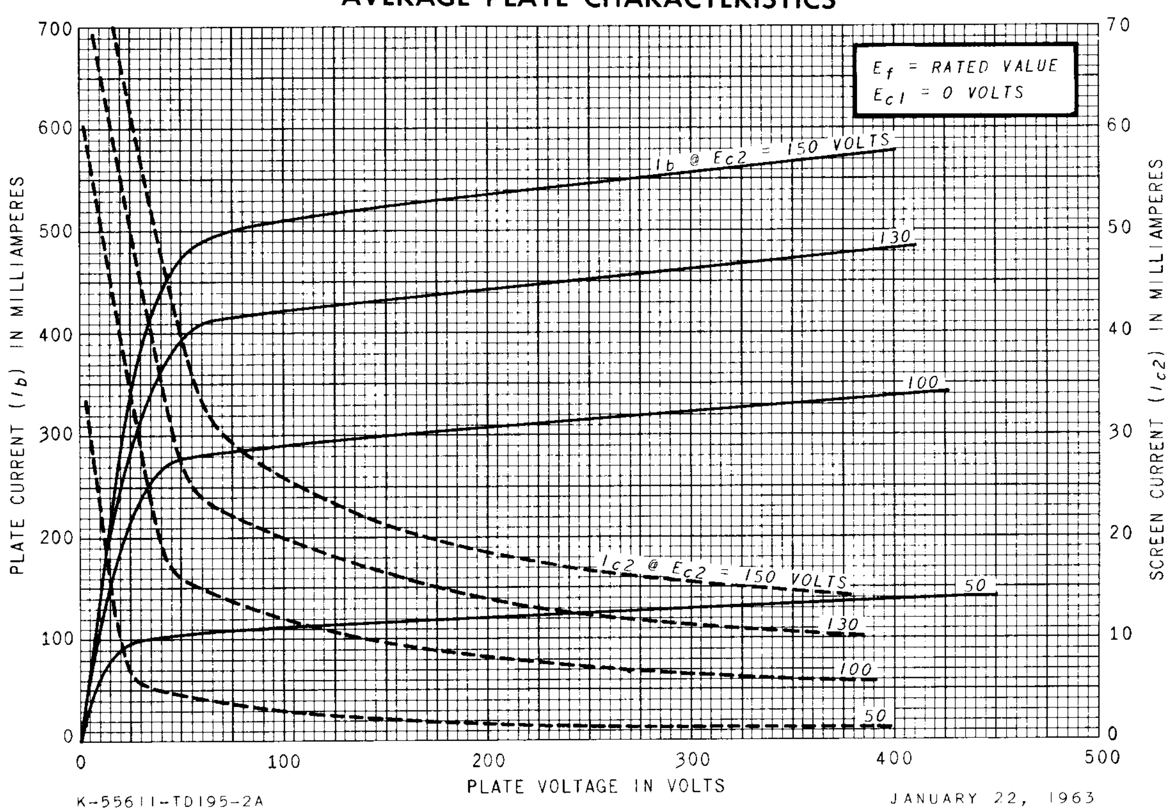
\# Applied for short interval (two seconds maximum) so as not to damage tube.

∆ Triode connection (screen tied to plate) with Eb = Ec2 = 130 volts and Ec1 = -20 volts.

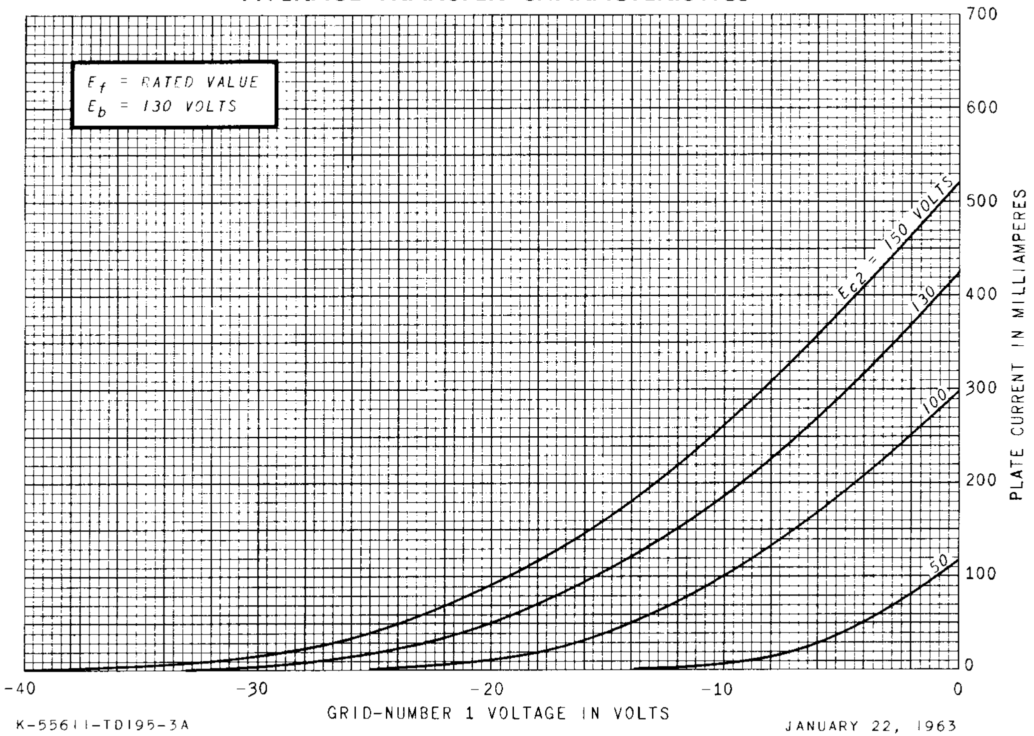



AVERAGE PLATE CHARACTERISTICS
E_f = RATED VALUE
E_{c2} = 130 VOLTS
I_b @ E_{c1} = 0 VOLTS
-5.0
-10
-15
-20
-25
-30
I_{c2} @ E_{c1} = 0 VOLTS
-5.0
-10
-15
-20
-25
-30
PLATE CURRENT (I_b) IN MILLIAMPERES
SCREEN CURRENT (I_{c2}) IN MILLIAMPERES
PLATE VOLTAGE IN VOLTS
0
100
200
300
400
500
10
20
30
40
50
K-55611-TD195-1A
JANUARY 22, 1963

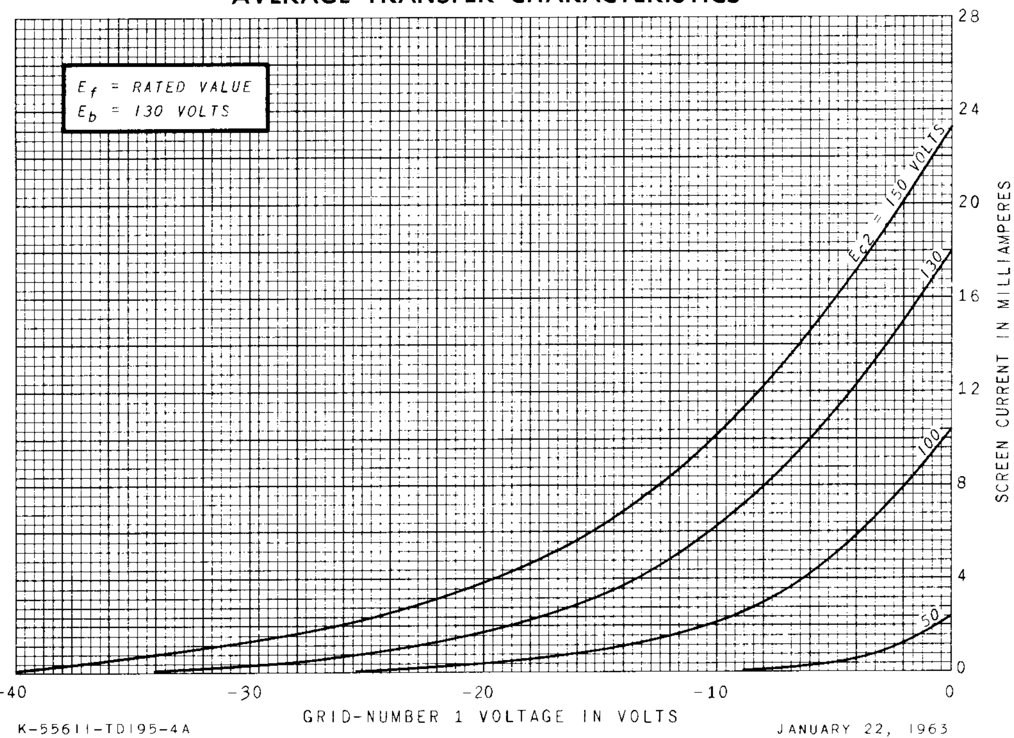

AVERAGE PLATE CHARACTERISTICS


E_f = RATED VALUE
E_{c1} = 0 VOLTS
I_b @ E_{c2} = 150 VOLTS
130
100
50
I_{c2} @ E_{c2} = 150 VOLTS
130
100
50
PLATE CURRENT (I_b) IN MILLIAMPERES
SCREEN CURRENT (I_{c2}) IN MILLIAMPERES
PLATE VOLTAGE IN VOLTS
0
100
200
300
400
500
600
700
10
20
30
40
50
60
70
K-55611-TD195-2A
JANUARY 22, 1963

AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



RECEIVING TUBE DEPARTMENT



Owensboro, Kentucky